National Institute of Environmental Health Sciences

Sustainability of groundwater resources in the north-eastern region of Bangladesh

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Abstract:

Water is essential for economic, social, and environmental development. Global water resources are vulnerable due to increasing demand related to population growth, pollution potential, and climate change. Competition for water between different sectors is increasing. To meet the increasing demand, the use of groundwater is increasing worldwide. In this paper, the water-table dynamics of the north-eastern region of Bangladesh were studied using the MEKESENS software. This study reveals that the depth to water-table (WT) of almost all the wells is declining slowly. In many cases, the depth will approximately double by the year 2040, and almost all will double by 2060, if the present trend continues. If the decline of the water-table is allowed to continue in the long run, the result could be a serious threat to the ecology and to the sustainability of food production, which is vital for the nation's food security. Therefore, necessary measures should be taken to sustain water resources and thereby agricultural production. Demand-side management of water and the development of alternative surface water sources seem to be viable strategies for the area. These strategies could be employed to reduce pressure on groundwater and thus maintain the sustainability of the resource.

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Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Other Climate Scenario

Other Climate Scenario: Long term yearly water table (WT) scenario

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Policymaker

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Food/Water Security, Food/Water Security

Food/Water Security: Agricultural Productivity

Geographic Feature:

resource focuses on specific type of geography

Freshwater

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: Other Asian Country

Other Asian Country: Bangladesh

Health Impact:

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology:

type of model used or methodology development is a focus of resource

Exposure Change Prediction

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Medium-Term (10-50 years)

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content